

The Office Action indicates that the two documents cited in the Information Disclosure Statement filed September 27, 2005, have not been considered. The documents cited therein were listed in a Chinese Office Action and may be relevant for the reasons noted therein. An English translation of the Chinese Office Action as well as copies of the cited documents were included with the Information Disclosure Statement. For the Examiner's convenience, copies of the Office Action, its translation and the two Japanese documents are being resubmitted herewith. It is respectfully requested that the documents be considered and that a copy of the Information Disclosure Statement be initialed and returned with the next Office Action.

Claims 1, 7-9, 12 and 18-20 were rejected under 35 U.S.C. § 102 as being anticipated by U.S. Patent No. 6,575,549 (Silverbrook). Claims 7 and 18 were rejected under § 102 as being anticipated by U.S. Patent No. 6,481,816 (Oyen). Claims 10 and 21 were rejected under 35 U.S.C. § 103 as being unpatentable over Silverbrook in view of U.S. Patent No. 5,929,875 (Su et al.). Claims 11 and 22 were rejected under 35 U.S.C. § 103 as being unpatentable over Silverbrook in view of Oyen. Claims 4-6 and 15-17 were rejected under 35 U.S.C. § 103 as being unpatentable over Oyen in view of U.S. Patent No. 6,278,469 (Bland et al.). These rejections are respectfully traversed.

In the Office Action, it was stated that in Silverbrook, a landing state of ink ejected from a neighboring nozzle is discussed at column 2, lines 56-62. In particular, it was stated that in Silverbrook the landing states of ink ejected from nozzles are checked and neighboring nozzles would only be used for compensation if they are functioning properly. In that passage, however, malfunctioning nozzle H is described as a nozzle not

operating correctly. Silverbrook does not disclose considering a landing state of ink ejected from a neighboring nozzle when data corresponding to an abnormal nozzle is printed by a neighboring nozzle. Nor does Silverbrook disclose or suggest alternately adding printing data corresponding to an abnormal nozzle to the neighboring nozzles. Accordingly, Silverbrook fails to disclose or suggest at least adding printing data corresponding to an abnormal nozzle malfunctioning in ink-ejection to printing data corresponding to a neighboring nozzle arranged in the neighborhood of the abnormal nozzle based on a landing state of ink ejected from the neighboring nozzle, and printing data corresponding to the N-th abnormal nozzle is alternately added to the printing data corresponding to the a (N-M)-th neighboring nozzle and the (N+M)-th neighboring nozzle every time the printing data corresponding to the N-th abnormal nozzle is present, as is recited in independent Claims 1 and 12. As evidence, the Examiner's attention is directed to the black dots in row 7 of Figure 3 of Silverbrook.

Thus, Silverbrook fails to disclose or suggest important features of the present invention recited in independent Claims 1 and 12.

Independent Claims 7 and 18 recite, inter alia, that when printing data corresponding to the N-th abnormal nozzle is added to that corresponding to the (N-M)-th neighboring nozzle and the (N+M)-th neighboring nozzle, a printing resolution of the printing head is improved. For example, referring to Applicants' Figure 13A, dots Da to De can be considered data to be printed by an abnormal nozzle and printing data to be printed by neighboring nozzles N-1 and N+1 are precluded from overlapping on the printing data to be compensated by the neighboring nozzles. On the contrary, in Figure 2

of Silverbrook, when dots 16, 18, 20 and 22 to be formed by abnormal nozzle H are formed by neighboring nozzles G and I as shown in Figure 3, the printing resolution of the printing head is not improved.

Thus, Silverbrook also fails to disclose or suggest important features of the present invention recited in independent Claims 7 and 18.

In Oyen, when dots (1, 2), (2,2), (3,2), (5,2), (6,2), (8, 2), (10, 2) and (11, 2) as shown in Figure 5A to be formed by abnormal nozzle i are formed by neighboring nozzles h and j as shown in Figures 5C or 5D, the printing resolution of the printing head is also not improved.

Thus, Oyen fails to disclose or suggest important features of the present invention recited in independent Claims 7 and 18.

Regarding Claims 4 and 15, printing data corresponding to the N-th abnormal nozzle is added to the printing data corresponding to the (N-M)-th neighboring nozzle and the (N+M)-th neighboring nozzle, and a ratio of the printing data corresponding to the N-th abnormal nozzle to be added to the printing data corresponding to the (N-M)-th neighboring nozzle and the (N+M)-th neighboring nozzle is determined based on states which are related to the ink-ejection property of the (N-M)-th neighboring nozzle and the (N+M)-th neighboring nozzle. For example, referring to Applicants' Figure 11A, printing data Da to Dd can correspond to the abnormal nozzle and in Figure 11B, printing data Da' can be added to the (N-M)-th neighboring nozzle and printing data Db' to Dd' can be added to the (N+M)-th neighboring nozzle. The ratio is determined based on states related to the ink-ejection property of the neighboring nozzles. That is, the printing data of the

abnormal nozzle can be assigned to neighboring nozzles, and the assignment ratio can be adjusted. As recognized by the Examiner, Oyen does not disclose these features.

While Bland et al. may utilize mask patterns to enable deposition of more ink from higher quality nozzles and less ink from lower quality nozzles, there is no disclosure or suggestion of assigning printing data to different nozzles if an abnormal nozzle occurs. Accordingly, one of ordinary skill in the art would not look to Bland et al. to modify Oyen in the manner suggested by the Examiner.

Accordingly, the combination of Oyen and Bland et al. fails to disclose or suggest important features of the present invention recited in independent Claims 4 and 15.

Su et al. has also been reviewed, but is not believed to remedy the deficiencies of the citations noted above with respect to the independent claims.


Thus, independent Claims 1, 4, 7, 12, 15 and 18 are patentable over the citations of record. Reconsideration and withdrawal of the §§ 102 and 103 rejections are requested.

For the foregoing reasons, Applicants respectfully submit that independent Claims 1, 4, 7, 12, 15 and 18 are patentable. Dependent Claims 5, 6, 8-11, 16, 17 and 19-22 are also allowable, in their own right, for defining features of the present invention in addition to those recited in their respective independent claims. Individual consideration of the dependent claims is requested.

Applicants submit that the present application is in condition for allowance. Favorable reconsideration, withdrawal of the rejections set forth in the above-noted Office Action, and an early Notice of Allowability are requested.

Applicants' undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 530-1010. All correspondence should continue to be directed to our below-listed address.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Mark A. Williamson", written over a horizontal line.

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